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On the Theory of Double Gamma Electronic Magnetic Resonance in Paramagnetic Systems

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Abstract

The theoretical analysis is continued of the double gamma electronic magnetic resonance (DGEMR) phenomenon described previously. The possibility of essential modification of the hyperfine magnetic structure (HMS) in the nuclear gamma resonance (NGR) spectrum under coherent excitation of the electron spin system of the paramagnetic atom is demonstrated. The influence of the r.f. amplitude on the DGEMR spectrum form is considered. The nature of the r.f. collapse of the HMS taking place in these conditions is defined. For small values of r.f. amplitude the DGEMR spectrum form in presence of the inhomogeneous broadening of ESR line and optimal experimental conditions defined by this matter are investigated.

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